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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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12/13/2005

Olaf Beutler

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EXAMINER

JOHNSON, PHILLIP A

ART UNIT

PAPER NUMBER

4136

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/537,205	<b>Applicant(s)</b> BEUTLER ET AL.	
	<b>Examiner</b> PHILLIP JOHNSON	<b>Art Unit</b> 4136	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/3/2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following features must be shown or canceled from the claim(s). No new matter should be entered.

- **the slide bearing lockable by lockable geometry (claim 13)**
- **the housing is cylindrical (claim 18)**

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to plainly show **the sliding bushing (6) which spans the contact region between the respective thrust members**

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**4a, 4b and the surrounding housing part 1a, 1b.** the as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 13 – 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Attention is specifically, directed to claims 13 and 22.

Claim 13 recites the limitation "**a lockable geometry**" in line 7. This limitation is unclear relative to the claimed invention as the specification provides an example that, in and of itself, is broad in scope. Examiner will assume any form of locking or retention method of feature will suffice.

Claim 16 recites the limitation "**a second one of two pinions connected to one of (a) a sensor side of the rack and (b) a steering column.**" This language is indeterminate as it does not clearly state if the second of the two pinions is connected either to sensor side of the rack side or the steering column or if the second of the two pinions is simultaneously connected to both components. This ambiguity is marked by the phrase "**one of,**" which implies an either or condition. Examiner will assume the latter condition where the second of the two pinions is connected simultaneously to both components.

Claim 22 recites the limitation "**a sliding bearing**" in line 2. It is unclear as to whether the applicant is referring to the sliding bearing recited in claim 13, line 6, or if this is another distinct sliding bearing. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 13, 14, 17, 18 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Wendler et al. (USP 4,828,068).** Wendler et al. discloses, as best understood, a device with all of the limitations (See fig. 1) of the claimed invention comprising:

- a housing (12), wherein the housing is cylindrical (assumed cylindrical since it is integral to cylinder 30 described in C2, L60) and honed throughout (not shown, but understood to be present in order to support sliding motion of slide bearing, 29)
- at least one thrust member (not shown, but known and old for steering gear systems)/pinion (16) pairing
- a rack (20) extending in the housing, the rack operatively connected to the thrust member/pinion pairing
- at least one slide bearing (29) arranged on a tooth-free region of rack between the rack and the housing (See housing cutaway in Fig. 1)
- the slide bearing lockable by a locking geometry (C2, L56)

**Regarding claim 14,** Wendler et al. discloses a device adapted to be arranged in a motor vehicle (C1, L7).

**Regarding claim 21,** the sliding bearing comprised of an injection-molded part implies a process by which a product is formed and therefore given no patentable weight in an apparatus claim (See MPEP 2113)

#### ***Claim Rejections - 35 USC § 103***

6. **Claims 15, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wendler et al.** Wendler et al. discloses all of the claimed limitations with the exception of

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the slide bearing being formed of a high-temperature, high-performance plastic (**claim 19 and 20**). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use high-temperature, high performance plastic for the slide bearing material since it was known in the art that slide bearings made of the claimed material can achieve the required performance characteristics (i.e. friction reduction, and wear resistance) at reduce cost and weight.

**Regarding claim 15**, the use of two slide bearings is a duplication of parts for a redundant effect of guiding the rack within the housing and therefore holds no inventive significance over a single slide bearing.

7. **Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wendler et al. in view of Shimizu et al. (USP 6,543,569).** Wendler et al. discloses, as best understood, all of the claimed limitations with the exception of the at least one thrust member/pinion pairing including two pinions and one thrust member associated with each pinion, a first one of the two pinions connected to a servo side of the rack and a second one of the two pinions connected to one of (a) a sensor side of the rack and (b) a steering column.

Shimizu et al. teaches the use of the device configuration as claimed above for the purpose of providing assist torque to compliment steering torque, thus reducing the force required to turn a steering wheel (C1, L12 – 14 and L20 – 26).

It would have been obvious to one of ordinary skill in the art to use the device configuration, as taught by Shimizu et al., in the device of Wendler et al. for the purpose of providing assist torque to compliment steering torque, thus reducing the force required to turn a steering wheel.

8. **Claims 22, 23, 24 and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Wendler et al. in view of Kostrzewa (USP 5,622,085).** Wendler et al. discloses all of the claimed limitations with the exception of a sliding bearing or a sliding bushing substantially covering a contact area arranged between a thrust member of the thrust member/pinion pairing and a housing part surrounding the thrust member.

Kostrzewa teaches the use of a sliding bearing or slide bushing with a thrust member in the above configuration for the purpose of enabling the thrust to resist relatively large rack and pinion gear tooth separation forces at relatively high temperatures (C1, L25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a slide bearing or bushing with a thrust member, as taught by Kostrzewa, in the device of Wendler et al. for the purpose of enabling the thrust member to resist relatively large rack and pinion gear tooth separation forces at relatively high temperatures.

**Regarding claim 23,** Kostrzewa discloses wherein one of (a) the sliding bearing and (b) the sliding bushing is inserted into the housing part (See Fig. 1).

**Regarding claims 24 and 25,** the combined device of Wendler et al. and Kostrzewa does not disclose wherein the sliding bearing substantially covering the contact area is formed of high-performance plastic. However, it is within the routine skill in the art to use high performance plastic for slide bearing material as a means to achieve the required performance characteristics (i.e. friction reduction and wear resistance) at a reduced cost and weight.

9. **Claims 26, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wendler et al. in view of Bayle (USP 3,844,181).** Wendler et al. discloses all of the claimed limitations with the exception of a thrust member of the thrust member/pinion pairing being

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formed of a slide-modified, high-performance plastic. Bayle teaches the use of a slide-modified, high performance plastic (C2, L3) for the purpose of providing an improved construction that eliminates rattle noises and impact shock loads (C1, L29 - 41).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use materials, as taught by Bayle, in the device of Wendler et al. for the purpose of providing an improved construction that eliminates rattle noises and impact shock loads.

**Regarding claims 28**, the thrust member slide-modified, high-performance injection molded plastic implies a process by which a product is formed and therefore given no patentable weight in an apparatus claim (See MPEP 2113)

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHILLIP JOHNSON whose telephone number is (571)270-5216. The examiner can normally be reached on MON - FRI, 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James A. Shriver can be reached on (571) 272-6698. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Phillip Johnson/  
Examiner, Art Unit 4136

/J. Allen Shriver/  
Supervisory Patent Examiner, Art Unit 4136